

MISSOURI DEPARTMENT OF CONSERVATION



November/December 2021

# Xplor



## BATTLING BACK

MISSOURI'S ELK HERD KEEPS ON GROWING



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Missouri's mightiest mammal makes a comeback.
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In winter, some animals power down to stay around.

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The setting sun gives the Missouri River a warm glow on a cold winter day. Nicknamed the “Big Muddy” for the massive amount of sediment it carries, North America’s longest river starts in Montana and ends near St. Louis.

📷 by Noppadol Paothong



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**ON THE COVER**

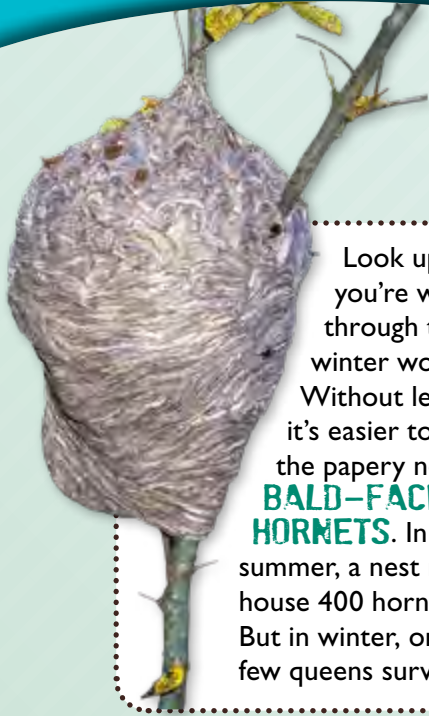
Elk

by Noppadol Paothong



# GET OUT!

FUN THINGS TO DO  
AND GREAT PLACES  
TO DISCOVER NATURE



Look up when you're walking through the winter woods. Without leaves, it's easier to spot the papery nests of **BALD-FACED HORNETS**. In summer, a nest may house 400 hornets. But in winter, only a few queens survive.

Help biologists track birds by watching your feeder. **JOIN PROJECT FEEDERWATCH** at [feederwatch.org](http://feederwatch.org).



Keep an eye out for **RED ADMIRAL BUTTERFLIES** fluttering south for winter. The best place to spot them is in woody or grassy areas in the late afternoon.



**CATCH A RAINBOW** during the winter trout fishing season. For rules and where to go, cast a line to [mdc.mo.gov/fishing/species/trout](http://mdc.mo.gov/fishing/species/trout).



Few things are more exciting than chasing a barking beagle as it barrels through the brush after bunnies. **RABBIT SEASON** runs from October 1 to February 15. For details, hop over to [mdc.mo.gov/hunting-trapping](http://mdc.mo.gov/hunting-trapping).



Pecans and hickory nuts fall from trees in early November. Pick up a pile — before the squirrels get 'em — and use the nuts to **MAKE YUMMY GRANOLA BARS** (see Page 18).



Pecans: © Ealisa | Dreamstime.com



# WHAT IS IT?

**DON'T KNOW?**  
Jump to Page 20 to find out.



- ① I prowls way up north where the Arctic winds howl.      ③ When prey disappears and my tummy starts to growl, ...  
② I'm a snow-white, golden-eyed, foul-weather fowl.      ④ ... I point my beak south to join my Show-Me State pals.
- .....



# Into the WILD

## cypress swamp

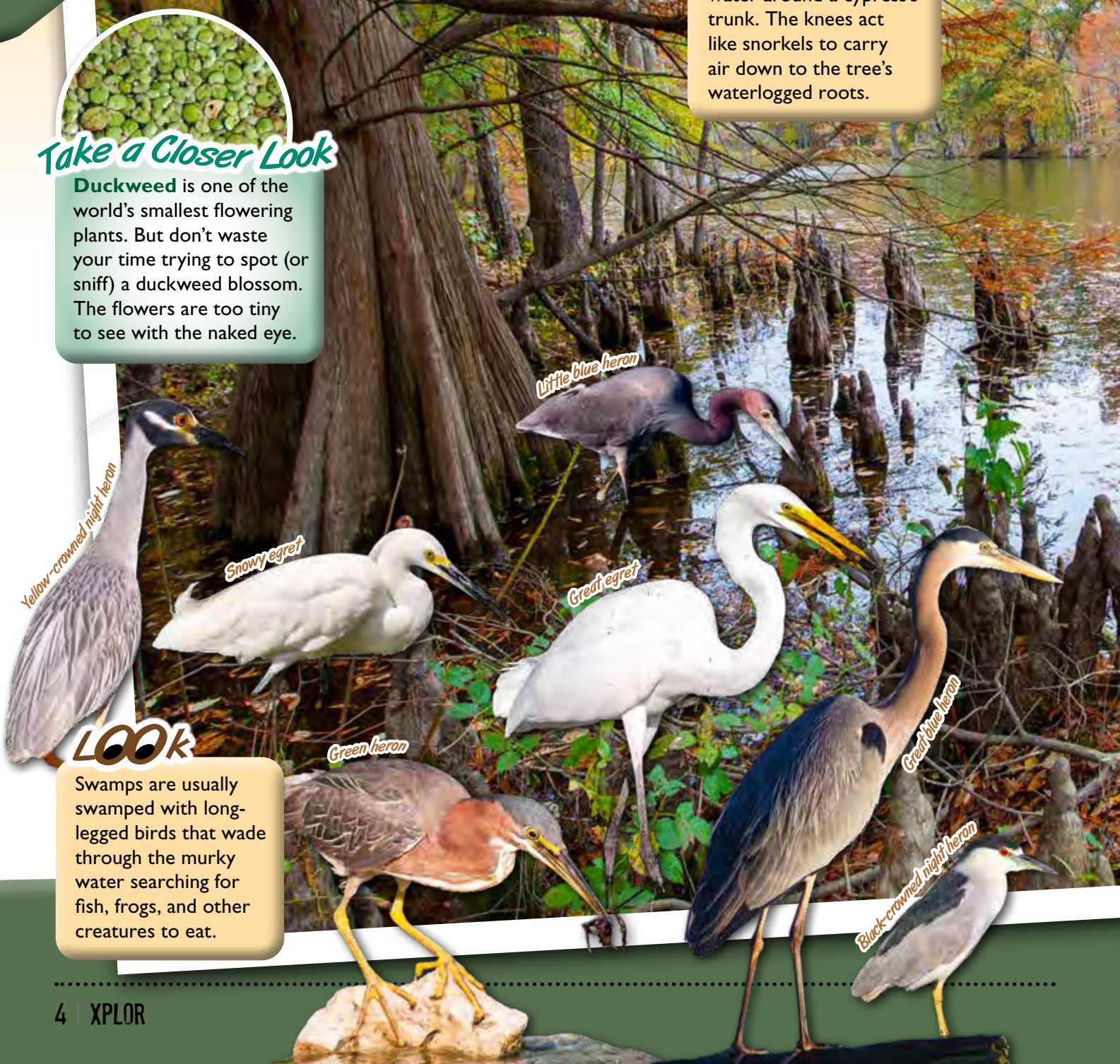
**N**ovember — when cypress trees blaze with autumn color — is a great time to wade into one of Missouri's most endangered habitats.

### LOOK

Bald cypress trees breathe with their knees! Bumpy stumps called “knees” stick out of the water around a cypress's trunk. The knees act like snorkels to carry air down to the tree's waterlogged roots.

### Take a Closer Look

**Duckweed** is one of the world's smallest flowering plants. But don't waste your time trying to spot (or sniff) a duckweed blossom. The flowers are too tiny to see with the naked eye.



### LOOK

Swamps are usually swamped with long-legged birds that wade through the murky water searching for fish, frogs, and other creatures to eat.





The bald cypress trees that ring Allred Lake Natural Area range from 500 to 1,000 years old!

## Where to Go

Two hundred years ago, Missouri's Bootheel was soggy with swamps. Today, only a few of these wonderful wetlands remain.

- 1 Allred Lake Natural Area
- 2 Otter Slough Conservation Area
- 3 Mingo National Wildlife Refuge
- 4 Big Oak Tree State Park

## Listen

Sometimes, swamp water doesn't contain much oxygen. If you're a fish, this makes it hard to breathe. **Bowfins** survive by sipping air at the water's surface. *Slurp!*



## LOOK

To escape predators, **swamp rabbits** dive into deep water. They're strong swimmers and often surface under roots to hide until danger has passed.



## What Happened Here?

If you find what look like raisins on a log, **DON'T EAT THEM!** Swamp rabbits often rest on cypress knees and fallen logs, leaving behind raisin-like poop pellets.



## Take a Closer Look

**Alligator snapping turtles** lurk in murky swamp water. When one gets hungry, it opens its mouth and wiggles its worm-shaped tongue. Hungry fish mistake the tongue for an easy meal and learn too late where the name "snapper" comes from.





# Wellkome HOME

MISSOURI'S  
MIGHTIEST  
MAMMAL MAKES  
A COMEBACK.

by Matt Seek



**H**uge herds of elk once grazed across most of Missouri. When the state was young, hunting laws didn't exist. So as you might have guessed, by the late 1800s the Show-Me State's last elk had disappeared into someone's stew pot.

But the big browsers are back, baby! In 2011, biologists rounded up dozens of elk from Kentucky — with permission, of course — and turned them loose in a wild corner of the Ozarks called Peck Ranch.

The elk must have liked their new home. The herd doubled in size to over 200 elk, and it continues to grow bigger every year.





## MISSOURI'S MIGHTIEST *Mammal*

Male elk, called bulls, can tip the scales at over 800 pounds and stand taller — if you count their towering antlers — than a pro basketball player. **Speaking of antlers: They can weigh 40 pounds all by themselves!** To hold up their heavy headgear, bulls have a thick neck covered with a shaggy mane of fur. Female elk, called cows, weigh up to 500 pounds. And young elk, called calves, weigh about 35 pounds at birth.

## *Strength* IN NUMBERS

Cows and calves live together for most of the year in herds of up to 50 members. After all, 50 sets of eyes are better than one for spotting danger! Bulls join the herds during mating season. Elk spend most of the day hiding in forests and glades but move into open areas at dawn and dusk.







## *Bugle Boys* AND KNUCKLE CRACKERS

In the fall, bulls let loose earsplitting squeals, called bugles. The calls can be heard half

a mile away. They're used to attract girlfriends and warn other bulls to get lost.

When an elk bugles, it actually makes two sounds at once: a low-pitched roar and a high-pitched whistle. To do this, it blows through its mouth and nose together — kind of like playing a trumpet and a kazoo at the same time.

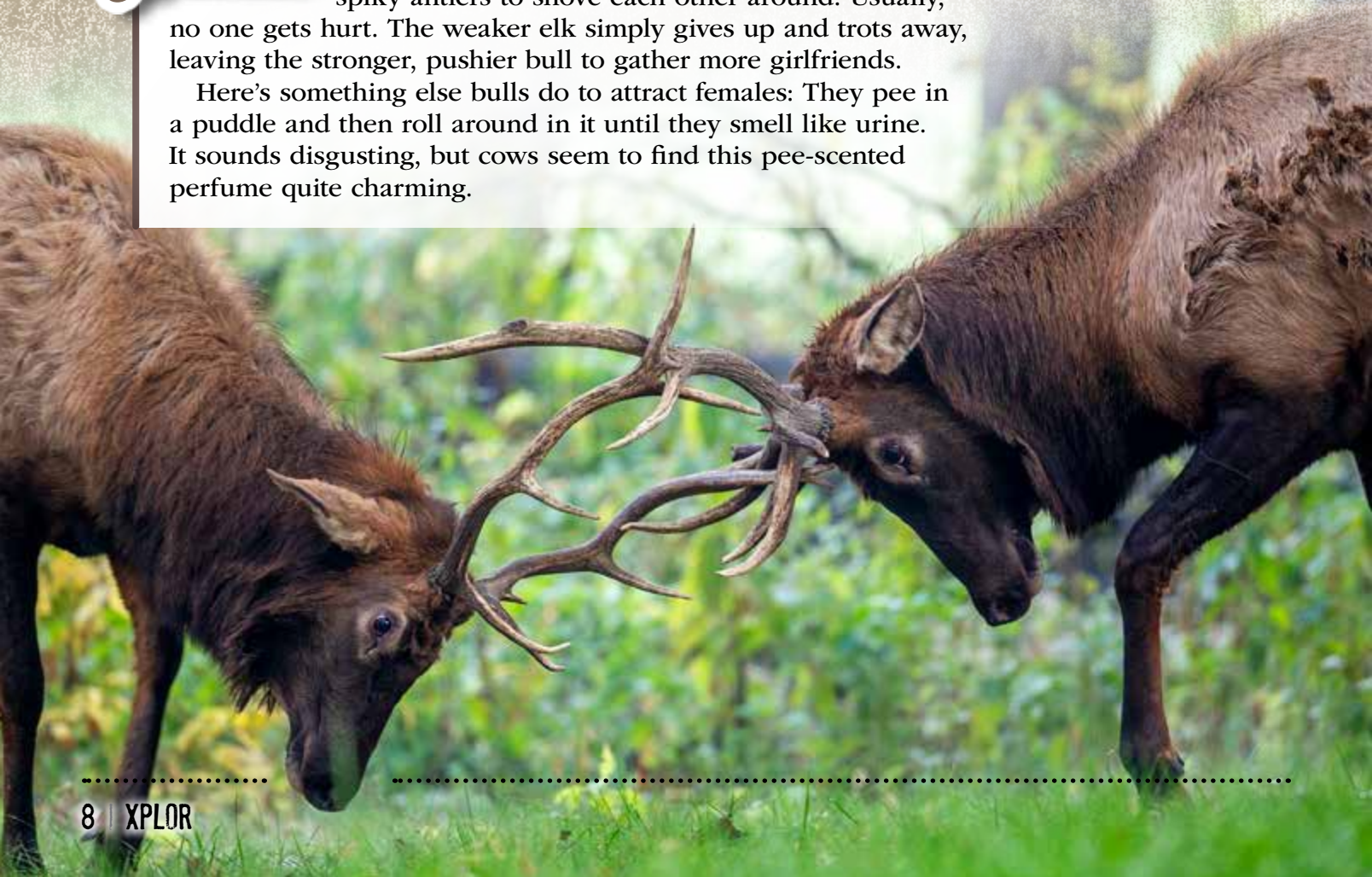
Elk also grunt, bark, whine, and chuckle. When they walk, their front ankles make a clicking sound with every step. This “knuckle cracking” helps them keep track of each other at night or when they're in a brushy forest.

## **BULL** *Battles*

*Crack! Crunch! Crash!*

Before mating season, bulls battle by using their spiky antlers to shove each other around. Usually, no one gets hurt. The weaker elk simply gives up and trots away, leaving the stronger, pushier bull to gather more girlfriends.

Here's something else bulls do to attract females: They pee in a puddle and then roll around in it until they smell like urine. It sounds disgusting, but cows seem to find this pee-scented perfume quite charming.







Aaron Hildreth

## FOUR Stomachs TO FILL

To an elk, the world is one big salad bar. They graze on grass and other plants, pluck acorns from the ground with their nimble lips, and strip bark and leaves off trees.

The next time your tummy growls, think about an elk. When it gets hungry, it doesn't have just one stomach to fill. It has four! The extra chambers help an elk get as many nutrients as possible from tough-to-digest plants.

## Camouflaged CALVES

Baby elk are born in late May or June. Each mama usually has only one calf. An hour

after birth, newborns can stand on their skinny legs and take their first wobbly steps. They grow quickly by drinking mom's milk.

Like most babies, calves need lots of rest. They curl into balls and snooze in tall grass or soft leaves. A calf's spotty fur helps it blend in with the sun-dappled forest floor.

For the first few weeks, calves spend a lot of time alone. They're nearly odorless, and they hide from predators by remaining silent and motionless. Mom, who is much bigger, louder, and smellier, stays away so she doesn't lead coyotes, bobcats, and other elk-eaters to her little one. But she checks in several times a day to feed her hungry baby. After a couple weeks, the calf becomes much more mobile and can outrun many would-be predators.



Aaron Hildreth



## SEE FOR YOURSELF

If you want to see Missouri's mightiest mammal for yourself, ask your parents to take you on the Peck Ranch driving tour. Your best chance to find a herd is right after sunrise or right before sunset. For a map of the route and other details — including when the tour is closed for deer hunting — hoof it to [short.mdc.mo.gov/ZJJ](http://short.mdc.mo.gov/ZJJ).



# LIFE ON LOW POWER

by Matt Seek  
artwork by Shannon Beaumont

Winter is tough for wild critters. Keeping warm in freezing weather uses lots of energy. And food gets hard to find when snow starts to blow. So how do animals survive these cold, dark months?

Some say, “See ya!” and skedaddle south where it’s warmer. Others tough it out and prowl the frozen countryside looking for meals. And some critters — the ones this story is about — simply use less energy.

During winter, black bears go nearly 100 days without peeing or pooping.



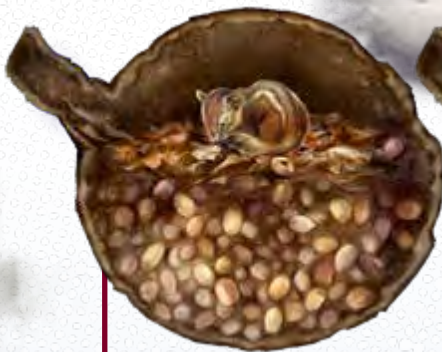
# SUPER SNOOZERS

## Eastern Chipmunk



In the fall, an eastern chipmunk has just one thought in its furry little head: storing enough food for winter. It gathers nuts and acorns and stuffs them in its cheeks like you might fill a supermarket sack. Then it scurries to its underground den to unpack its “groceries.”

A single chipmunk can pack its underground pantry with enough seeds to fill nine 2-liter soda bottles.



When winter arrives, the sleepy squirrel builds a bed atop the pile of food and dozes on and off until spring.



At first, its bed is near the roof of its den.



But as time goes on, the hungry 'munk eats more and more of its seed stash, and its bed sinks to the floor.

## American Black Bear



To pack on a thick layer of fat for winter, bears gobble acorns, insects, and other food. At the peak of their feast-fest, they can gain 40 pounds a week!

In November or early December, they search for cozy spots to take a *looong* winter nap. Some rake leaves into a cave or crevice. Others

take shelter in a hollow tree or under a fallen log. While they're snoozing, they don't eat or drink. Instead, they rely on their fat for energy.

In January, mama bears give birth to two or three itty-bitty cubs. While mom continues to snooze, the cubs drink her milk to grow bigger and snuggle against her to keep cozy.





## Western Painted Turtle



Western painted turtles spend winter underwater. When temperatures drop, their body functions slow down. They need only a tiny bit of oxygen to stay alive, and they get it by moving water over a part of their bodies that biologists call the cloaca (*cloe-ay-kub*). Most people call it something else: rear end.

Surviving with little oxygen for dozens of days has a downside: Turtles wake up with terrible muscle cramps! To get rid of them, they find a warm spot where they can soak up some sun. This helps them produce vitamin D, which combats the cramps.

Going without oxygen causes acid to build up in a turtle's muscles. To neutralize the acid, turtles steal calcium from their shells.

Every winter, a cave in Canada that's no bigger than your living room becomes home to tens of thousands of eastern gartersnakes.



## Snakes



Before the weather turns shivery, snakes get slithery. They wriggle into abandoned woodchuck burrows, caves, and cliff crevices — any place the temperature stays above freezing.

As they slither, they leave a trail of scent that other snakes can follow. That's how dozens — sometimes hundreds — of snakes end up tangled together in winter dens.

During summer, a kingsnake would happily gobble a gartersnake. But during winter, snakes lose the desire to eat.



# HARDCORE HIBERNATORS

## Woodchuck



Every October, in fields and forests across Missouri, woodchucks waddle into their burrows, curl up in leaf-lined beds, and switch their bodies to “standby.”

Their lungs and hearts grind nearly to a halt. Blood that once gushed in their veins creeps to a trickle. Electricity zipping around their brains fizzles out. And their body temperatures plummet to a few degrees above freezing.

This slowed-down state is called hibernation (*high-bur-nay-shun*). It helps animals conserve energy during hard times so they don’t need to eat or drink.

If you dug up a woodchuck in winter — we don’t advise it! — you could toss it around like a furry football for hours before it would “wake up.”

During hibernation, a ground squirrel’s heart rate drops from 250 beats a minute to five, and it goes from taking 50 breaths a minute to four.

## 13-Lined Ground Squirrel



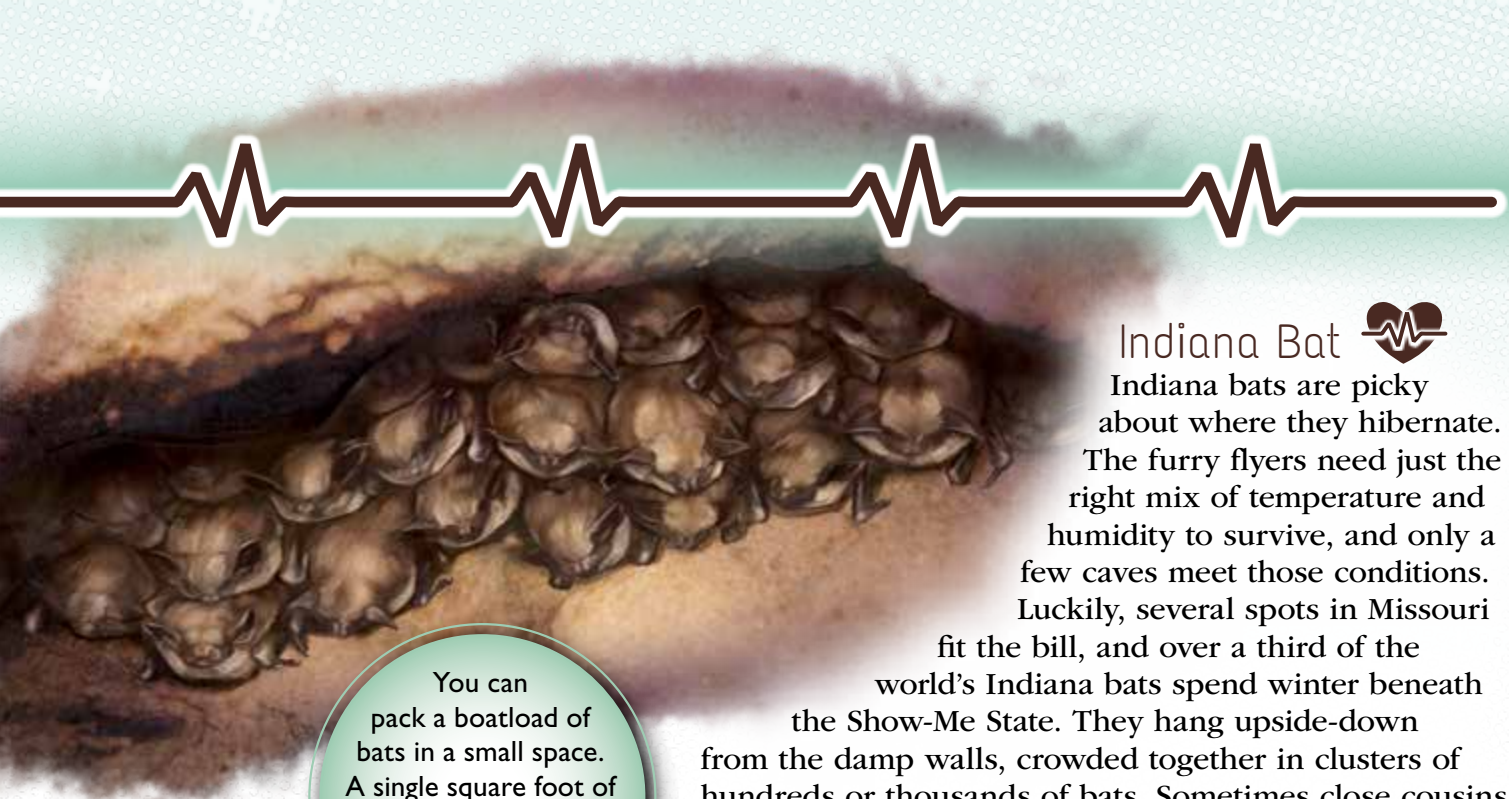
Woodchucks hibernate for about three months, but that’s merely a nap compared to the super-sized siestas taken by its striped cousins.

Thirteen-lined ground squirrels plow through prairies in northern and western Missouri. As their name suggests, they live underground.

When they aren’t digging tunnels, they spend time stuffing their pie-holes with anything they can get their furry paws on. Seeds, fruits, grass, insects, worms, eggs, lizards, mice — they all go gulp. In no time, the once-skinny squirrels have nearly doubled their weight.

At the end of summer, ground squirrels crawl into their burrows, drift deeply into hibernation, and don’t wake up until ... *yawn* ... seven months later!





## Indiana Bat

Indiana bats are picky about where they hibernate. The furry flyers need just the right mix of temperature and humidity to survive, and only a few caves meet those conditions. Luckily, several spots in Missouri fit the bill, and over a third of the world's Indiana bats spend winter beneath the Show-Me State. They hang upside-down from the damp walls, crowded together in clusters of hundreds or thousands of bats. Sometimes close cousins, like gray bats and little brown bats, join the sleepover.

You can pack a boatload of bats in a small space. A single square foot of cave wall can contain up to 500 hibernating bug-munchers.

## Meadow Jumping Mouse

Meadow jumping mice fall asleep in the fall not knowing if they will wake up in the spring.

In September, this bouncy mouse tunnels into a grassy slope and builds a nest. When its bed is ready, the mouse tucks its head between its hind legs and wraps its tail around its body.

Curled up in a golf-ball-sized lump, the little mouse hibernates for up to seven months. Unfortunately, nearly two-thirds of all jumping mice don't wake up from their dirt naps.



*Sproing!*  
When frightened, a meadow jumping mouse can leap up to 12 feet in a single bound.



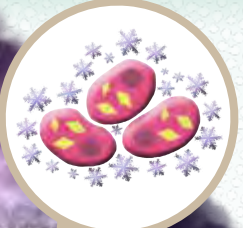



# FROZEN ALIVE

## Boreal Chorus Frog

A boreal chorus frog spends winter chilling out — literally. When icy weather hits, the thumb-sized frog quits breathing, its heart stops, and its body freezes nearly solid.

There's only one problem. When water freezes, it expands. If water in the frog's cells expanded, the cells would burst like overfilled balloons, and the little frog would ... well ... croak. But chemicals in the frog's body cause ice to form *around* the cells, not *inside* them. And chemicals inside the cells keep them from freezing.




Male chorus frogs sing in the spring. Their calls are a raspy *preeeeep* that sounds similar to running your fingernail over a comb.

## Mourning Cloak Butterfly

Mourning cloak butterflies spend winter huddled in tree cavities or under loose bark. Though the upper sides of their wings are brightly colored, the undersides are well-camouflaged. To hide from hungry birds and other insect-eaters, a mourning cloak simply folds its wings and disappears.

Antifreeze inside the butterfly's body stops its cells from freezing. And extra fuzz on the outside of its body helps it trap heat.

On warm winter days — even when there's still snow on the ground — keep an eye out for hungry mourning cloaks seeking tree sap to slurp. Their fluttery flight is a sign spring will soon be here.



To warm up its wing muscles for flight, a mourning cloak shivers. This raises its temperature 5 degrees or more.



THIS  
ISSUE:

illustrated by  
David Besenger

# COOPER'S HAWK VS NORTHERN CARDINAL

## The Big Squeeze

Unlike most hawks that kill with a bite from their beaks, Coops dispatch prey by squeezing it with their talons.

## Fast and Furious

This forest flyer dive-bombs through branches to surprise unsuspecting birds.

## Chip In for Safety

When a cardinal spots a predator, it warns other birds of the danger with a loud, piercing call: Chip! Chip! Chip!

## Tangled Up

Cardinals spend most of their time in tangles of brushy vegetation, where it's hard for predators to penetrate.

AND THE WINNER IS...

Tearing through trees is risky business for a hawk. Nearly a quarter of all Coops break their own bones. This time, however, it's the cardinal that gets broken.



# STRANGE but TRUE!

YOUR GUIDE TO ALL THE  
**UNUSUAL, UNIQUE,**  
AND **UNBELIEVABLE**  
STUFF THAT GOES ON IN NATURE



## BOOK SCORPIONS

are rice-sized predators that eat dust mites, ants, and tiny moths. They're often found in musty old books, where they prowl across the pages looking for book lice, another favorite snack.

Nature's mood ring: The color of a male **WILD TURKEY'S** head offers clues to the bird's mood. A relaxed gobbler sports a bluish-red head. When a gobbler gets excited, angry, or scared, its head flushes with blood and turns bright red.



Touching **POISON IVY** can give you an itchy rash. But animals don't have this problem. Deer nibble the plant's leaves in the spring, and birds eat its white berries during winter.



Not all **SNOW GEESE** are as white as snow. Some have a dark body. Until 1983, biologists believed the darker geese, called "blue geese," were a separate species.

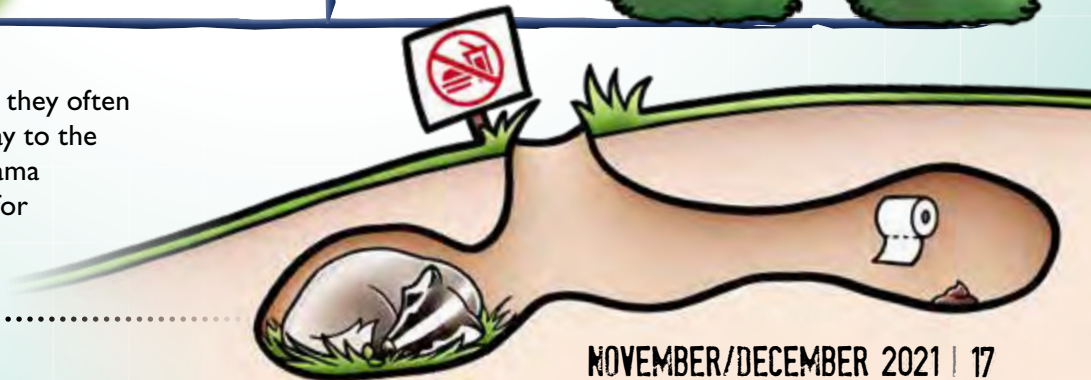


Many trees are both male and female. But **EASTERN RED CEDARS** usually have separate sexes. Male trees have tiny brownish-orange cones that release clouds of yellow pollen. Female trees produce small, bluish-purple berries.



Why do **HONEY LOCUSTS** have so many huge thorns? Some scientists suspect the thorns kept mastodons — elephant-like creatures that once lumbered across North America — from pushing over locusts so they could eat the sweet seeds.

**BADGERS** are so good at digging, they often sleep in a new burrow from one day to the next. But when raising babies, a mama badger may remain in a single den for days and dig separate bedroom and bathroom chambers.





# How To

## Make Homemade Granola Bars

**F**uel your fall hikes with these yummy, easy-to-make granola bars.

### HERE'S WHAT YOU NEED

#### INGREDIENTS

- 2 1/2 cups old-fashioned rolled oats
- 1/2 cup of coarsely chopped pecans or hickory nuts
- 1/3 cup honey or maple syrup
- 1/4 cup brown sugar
- 1/4 cup butter
- 1 teaspoon vanilla extract
- Pinch of salt
- 3/4 cup flavor boosters (see suggestions and recipe ideas)

#### OTHER STUFF

- Large baking sheet
- Saucepan
- Mixing bowl and spoon
- Parchment paper
- Two 9-inch square baking pans
- A grown-up to help with the cooking



## HERE'S WHAT YOU DO



Heat your oven to 350 degrees. Spread out the oats and nuts on a baking sheet. Bake them, stirring once or twice, until they're lightly toasted.

Mix the honey, brown sugar, butter, vanilla extract, and salt in a saucepan over medium-low heat until the sugar dissolves and the mixture bubbles.



In a bowl, mix the ingredients in the saucepan with the oats and nuts. Let the mixture cool, then stir in your favorite flavor boosters.

Line a 9-inch pan with parchment paper. Spread the granola mixture into the pan. Grease the bottom of another pan and use it to smooch down the granola. The harder you press, the better the bars will hold together.



Place the granola in the refrigerator for at least two hours. Then cut it into 8 to 12 individual bars.

## RECIPE IDEAS

### Ozark Mountain Mix

1/4 cup dried blueberries

1/4 cup chocolate chips

1/4 cup dried cherries



### Xplorer Crunch

1/4 cup pretzel pieces

1/4 cup candy-coated chocolates

1/4 cup peanut butter



### Tropical Delights

1/4 cup cashews

1/4 cup shredded coconut

1/4 cup chopped mango



### OTHER FLAVOR BOOSTERS TO TRY

Butterscotch chips, raisins, mini marshmallows, dried cranberries, chopped dried apples, bananas, peanuts, or hazelnuts



# XPLOR: HIDE-OR

## Nuts for Acorns

After they drop from trees, acorns are gathered and gobbled by dozens of critters. Besides snacking on these capped containers of easy energy, blue jays and squirrels do something else with oak seeds: They hide them. Why? So they will have plenty of food for winter. Stocking up is so important, in fact, that blue jays and squirrels will steal acorns that others have stashed.

**In this game, one player is a blue jay, and the other is a squirrel.**

**Who can find the other's hidden acorns first?**

### Setting Up the Game

Cut out the acorns and game boards. Fold each game board into an "L." Divide the acorns so that each player has eight. Place a small loop of tape on the underside of each acorn.

### How to Win

The player who finds all of the other player's acorns first is the winner.

## WHAT IS IT?

— FROM PAGE 3 —

choice but to fly south. In winter, you might see one perched on a utility pole or fence post to watch fields for mice and voles. Unlike other owls, snowies hunt during the day. Learn more at [mdc.mo.gov/field-guide](http://mdc.mo.gov/field-guide).

Snowy owls usually live far north of Missouri on the Arctic tundra. With floofy white feathers, they don't give a hoot about cold, snowy weather. But when prey gets scarce, the owls have no







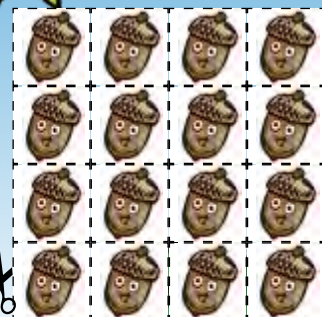
## How to Play



Secretly stick your acorns into random squares on the bottom grid of your game board.

Let your opponent take the first turn. He or she should call out a letter and a number, for example "C3." You look at the bottom half of your game board, find "C" on the top row, and move down three squares. If an acorn is on that square, you say "hit" and draw an "X" over it. If an acorn isn't there, say "miss" and draw an "O."

When it's your turn, use the top half of your game board to keep track of your hits and misses.



	A	B	C	D	E	F	G
1							
2							
3							
4							
5							
6							
7							
	A	B	C	D	E	F	G
1							
2							
3							
4							
5							
6							
7							

Use the top grid to mark  
your hits and misses.

FOLD  
HERE

Use the bottom grid to place your acorns  
and mark your opponent's hits and misses.

	A	B	C	D	E	F	G
1							
2							
3							
4							
5							
6							
7							
	A	B	C	D	E	F	G
1							
2							
3							
4							
5							
6							
7							



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FREE TO MISSOURI HOUSEHOLDS

## CRITTER CORNER

### Peregrine Falcon



A peregrine (*pair-uh-grin*) falcon hunts high in the sky. When it spots a tasty bird, it folds its wings and dives. *Whoosh!* The falcon becomes a feathered missile, screaming toward earth at speeds of nearly 200 mph. *Poof!* It slams into its prey, knocking it out. As the victim tumbles down, the falcon wheels around and plucks it up for dinner. Learn more at [mdc.mo.gov/field-guide](http://mdc.mo.gov/field-guide).